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Qwest Foundation for Education Competitive Sub-grant Application Assurance Sheet

Project Title: Using Technology to improve Achievement Amount of Request: \$ 7070

District Name: Joint School District Number: 2

Name of Certificated Teacher (or "lead teacher" if more than one): Lead: Katie Sisson and Math Department teachers-


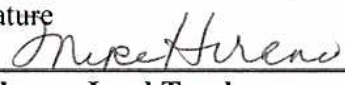

Name of School currently teaching at: Rocky Mountain High School

Years taught in Idaho K-12 public education: 1 others who will be using (15-30 years)

Content area(s) that you are teaching in Idaho K-12 public education: Math

I certify that if I receive a Qwest Foundation for Education Grant –

- I agree to create a video highlighting my project for the purposes of sharing best practices with other Idaho K-12 teachers.
- I agree to do one presentation on my project to other Idaho K-12 teachers before October 31, 2009.
- I agree to submit an electronic report to the Idaho State Department of Education before October 31, 2009.

Superintendent Name (print)	E-mail	Telephone
Linda Clark	Clark.linda@meridianschools.org	208-855-4500
Signature 		
Principal Name (print)	E-mail	Telephone
Mike Hirano	Hirano.mike@meridianschools.org	208-350-4340
Signature 		
Teacher or Lead Teacher (print)	E-mail	Telephone
Katie Sisson	Sisson.katie@meridianschools.org	208-350-4340
Signature 		

Qwest Foundation for Education Grant Sample Budget Sheet

Materials and Supplies	Capital Objects	Quantity	Price per unit	Total
Student Response System	Student Response Systems	2	\$3,390.00	\$6,780.00
TI Inspires	TI Inspires	2	\$145.00	\$290.00
				\$0.00
				\$0.00
				\$0.00
Grand total:				\$7,070.00

Write a one-page abstract that depicts an overall picture of your project

Rocky Mountain High School is a new high school in Joint School District Number 2 in Meridian, Idaho. Our school mission includes improving science, technology, and math skills of our students. Many of our students are in the advanced range on the Idaho State Achievement Test. We are a new school that will have many needs, and keeping the high achieving students at RMHS engaged in math and science will be a high priority. Many of our student's parents are engineers and work for either Hewlett Packard or Micron. Our students will be the next generation of engineers and computer programmers. We are one of the few schools in the nation that will offer the "Project Lead the Way" engineering program to our students. We constantly need to improve upon our delivery of math and science concepts. We are dedicated to teaching student's science, technology and math at the proper instructional level. We are dedicated to teaching students in a way they respond to, we are dedicated to teaching students using the most current technology. Today's students can get instant feedback via a text message; they should also be able to know whether or not they understand a math or science concept instantly.

We need new and innovative ways to see what our students know and do not know, we need constant assessment of their math and science skills. In many areas we need to improve on the depth we teach kids math and science. We need to engage all students in today's classroom. Many students in the high end range in the classroom have never been challenged and the teachers fail to see this. We need an immediate way to gauge whether or not we are teaching these students to their potential and whether we need to slow down or speed up in any one area. We need to engage the quiet shy, student in the back of the classroom as well as the outgoing student who is eager to share their knowledge. Also, as teachers, we must figure out immediately which concepts students are learning, and which concepts are difficult for students.

We need to find out if the quiet shy student understands the material we are teaching, and we need to understand quickly and efficiently if all of the students are getting the concepts we are presenting or if we are moving too quickly with the curriculum. We need an innovative way to solve these issues.

One very effective way that helps us to solve both these issues is to use a Student Response Pad in our classroom. We are proposing buying a set of Student Response Pads (some call them blue clickers) for the Science and Math classrooms at Rocky Mountain. Student response systems gauge the effectiveness of your classroom lecture, and give the teacher immediate insight into what the class does and does not know. The teacher also has immediate input as to whether all the students in the classroom are getting the concepts or if the teacher will need to spend extra time with any specific group of students. With a student response system everyone in the room is allowed to simultaneously respond to questions. Students stay anonymous to one another while the instructor gets immediate feedback. Student response systems increase the participation of all students. The Student Response Pads create a classroom environment where differences and answers can be observed and discussed immediately as a group. Student answers can be anonymous, yet discussed. Teachers immediately know whether a class or students is on the right learning track or not.

We also plan to purchase a TI-nspires license for each math classroom. This is a visual math learning system. This system allows a teacher to load files into a student calculator, working in groups, students observe patterns, make conjectures, and apply these conjectures to various problem-solving situations.

Current Use of Technology in our Classrooms

Compose a narrative describing the innovative things you are currently doing in the classroom - as it relates to the project - that improves student performance

Technology in our classrooms is used in many ways as an integral part of the curriculum to meet the needs of diverse learners. In math we use Interwrite school pads, projectors, calculators, cameras and projectors to improve student learning. We use technology to introduce new and exciting curricula based on real-world problems, provide scaffolds and tools to enhance learning.

Rocky Mountain High School is a school that houses a deaf and hard of hearing magnet. We have approximately 30 students who have interpreters come with them to class every day. We use technology to help these students. We use closed captioning from Discovery Education to teach concepts, and we use Interwrite School pads (similar to Smartboards) to visually demonstrate concepts. This technology helps students recognize, organize and represent knowledge.

We use PowerPoint to visually display many math and science concepts. We use an internal movie camera in Interwrite to show students how to do a problem. For example, the teachers demonstrates a math problem on the board, checks for student understanding and then students start on a problem-a teacher with Interwrite can let the demonstrated example play over and over again. This allows a student who did not catch every step of the problem to look up and see the process over and over again, this helps them better understand and allows the teacher to spend time with a student who needs more help.

Our science teachers use probes, microscopes and Swift cameras to enhance their teaching. Students use all of this technology also. This technology helps students learn to question, hypothesize, think critically and problem solve. Teachers also use many technology tools such as Exam View, and text book technology to help students learn visually and helps teacher be more efficient and accurate in their teaching. Exam View is a testing tool that allows teachers to quickly make individualized tests. Teachers use music from IPODS, computers and interactive calculators to help their students improve their skills.

We also use Discovery Education, which has over 40,000 clips we can use to enhance teaching in the classroom. Discovery Education is a streaming service that allows a teacher to pick from thousands of videos to demonstrate a concept, integrate the video into their PowerPoint or allow students to research concepts on their own. A teacher who is teaching about angles can teach a lesson not only discussing and demonstrating problems, but also showing students video samples one to five minutes long that demonstrate real life applications of the concepts.

We use computer programs like Fast Forward to teach students who are behind in reading, the fundamentals of reading. We use Plato Software to use remediate students in math, science and reading. We also use Plato to supplement curriculum.

(2-3 pages) Write a narrative that proposes your project and describes how you will extend classroom innovation through the use of technology to improve student performance. Address the following:

Project description

We are proposing buying a set of Student Response Pads (some call them blue student response systems) for the Science and Math classrooms at Rocky Mountain. We are also proposing purchasing TI Inspires software creates a dynamic dimension for students to visualize concepts and take an engaging, interactive role in their learning. It is used in conjunction with a projector and allows students to work on problems from a file in the calculator as well as watch a teacher demonstrate concepts.

Student response systems gauge the effectiveness of classroom lecture, and give the teacher immediate insight into what the class does and does not know. The teacher also has immediate input as to whether all the students in the classroom are getting the concepts or if the teacher will need to spend extra time with any specific group of students. With a student response system everyone in the room is allowed to simultaneously respond to questions. Students stay anonymous to one another while the instructor gets immediate feedback. Student response systems increase the participation of all students. The Student Response Pads create a classroom environment where differences and answers can be observed and discussed immediately as a group. Student answers can be anonymous, yet discussed. Teachers immediately know whether a class or students is on the right learning track or not. The teacher also has immediate input as to whether all the students in the classroom are getting the concepts or if the teacher will need to spend extra time with any specific group of students. The newer "student response systems" allow students to input short verbal answers and numeric answers.

With a student response system everyone in the room is allowed to simultaneously respond to questions. Students stay anonymous to one another while the instructor gets immediate feedback. Student response systems increase the participation of all students. The teacher can monitor and make sure all students are answering questions. The Student Response Pads create a classroom environment where differences and answers can be observed and discussed immediately as a group. Student answers can be anonymous, yet discussed. Teachers immediately know whether a class or students is on the right learning track or not. When we have these student response systems in our classroom we see that students who thought they were prepared for a test all of the sudden realize they need to brush up on one area or another. Students who have used these Student Response Pads have commented that they feel safer answering questions with the blue student response systems than with other methods of questioning. This is especially true of high achieving students who fear being wrong. Students who are good students comment that Student Response Pads help them review and help them realize where their strengths and weaknesses are. Student response systems can be used to compare and contrast many different concepts therefore deepening and strengthening student understanding. One teacher said student response systems, "kept the students engaged so intensely, they did not want to leave the class at the end of the class period. One teacher in our district who used the student response pads last year in a feeder middle school had the highest end of course exam scores in Joint School District #2 in the sixth grade. She taught high end Pre-Algebra students and low end Math 6 students. She felt the student response systems helped her help all students learn. We feel these student response systems will be a help in deepening student learning.

We also plan to purchase a TI-Nspires license for each math classroom. This is a visual math learning system. This system allows a teacher to load files into a student calculator, working in groups, students observe patterns, make conjectures, and apply these conjectures to various problem-solving situations. With the TI-Nspire, students are more interested in learning math because it becomes a much more active process. Instead of learning discrete computational skills and procedures, students grapple with, and ultimately discover, larger concepts and processes.

Students enjoy working in groups, and it gives them the opportunity to compare their ideas. Students ask more – and better – questions, and they actively seek counterexamples to their conjectures. Students can try to “mess up” a construction they are given by transforming it, because it means they are trying to see whether or not their conjectures are always true. This allows students to become much more self-sufficient learners. With our deaf and hard of hearing magnet school, this allows students to become more visual and self supporting learners.

Here is a quote from a teacher who uses TI Inspires in her classroom, “I teach Algebra I, and many of the big Algebra I concepts – equations and functions, rate of change, proportionality, and coordinate geometry – really come alive with the TI-Nspire. Students can see multiple representations of a concept on the same screen, and, as a result, I see a wider range of problem-solving methods. I’ve also found that the TI-Nspire CAS makes some of the more “algebraic” concepts more accessible to students. For instance, many students initially struggle to simplify algebraic expressions using the laws of exponents. The TI-Nspire CAS allows students to discover these laws through pattern recognition. Students are much more likely to remember and apply these laws if they have discovered them themselves.”

The primary purpose of this project would be to improve teacher instruction in all areas of instruction, including math and science. Every subject area can benefit from using the student response systems, and the student response systems can be used by many teachers in our building. Teachers develop the questions from materials taught in the classroom, or they can access questions from the adopted textbooks using ExamView®. Test can be shared, and student responses looked at to improve instruction. Teachers can share tests and questions to make learning consistent for all classes. Pictures, illustrations, and diagrams can be inserted as part of the question. Using student response systems to review before a unit test shows students and teachers which concepts need to be reviewed or reinforced prior to the test. Immediate feedback allows students to correct erroneous thinking to improve scores.

When the teacher asks a question during a lecture, student response systems will instantly tell you the percentage who answered questions. Plus it helps identify which students need extra help (discreetly/anonymously – only the teacher knows who has which system). This allows the teacher to focus on what students don’t know, reducing class time spent covering material that is already understood.

Student response systems provide state standards for all 50 states, allowing teachers to link test questions to the standards. We can measure student progress without “teaching to the test”. Student Response systems can be utilized with Power Point presentations as well to keep students engaged with the lesson. A graphic interface allows teachers to search and download materials.

Both of these systems will be new and innovative learning tools. We will no longer be teaching by the book and wondering if students understand the concepts, every teacher will be able to check understanding during their lessons, and know when to speed up, when to slow down and which students need special help.

Project team members (may include other teachers, administrators, school or district staff, etc.)

Katie Sisson, Jan Taylor, Katie Lamm, Ryan White, Emiko Quintana, Nicole Block, Steve Dyke, Debbie Weaver, Meghan Wonderlich, Dan Drlik, Christine Biebe

Feasibility

This project is feasible. The project involves using proven technology. Student Response systems and TI Inspires both have proven results, both improve student achievement. Data at one of our middle schools shows the highest test scores from the classrooms using the Student Response Pads.

Sustainability

Student Response Systems and TI Nspires will last for many years. The technology is growing and upgrades to software are free. The student response systems only need batteries replaced on a regular basis (the school will provide). The Nspires software works with the current classroom calculators.

School/District support

The school district will provide the projector, the classroom lesson materials, and the training on the systems. One half of our teachers in this project have been trained on the student response systems and have just been trying to figure out a way to get them. Our district provides training on student response systems and TI-Nspires.

Anticipated outcomes/impact

(1 page) Create a narrative detailing your project's scope and sequence as it relates to the project.

We plan to implement this project in the following ways:

- ☐ Buying the Student Response Systems
- ☐ Purchase TI Inspires
- ☐ Providing 15 hours worth of staff training on their use (over half our teachers are already trained and just need a refresher course)
- ☐ Provide a TI Inspires training
- ☐ Provide TI training and collaboration amongst teachers as to "best" practices
- ☐ Training available through district personnel
- ☐ Teachers design common assessments
- ☐ Integrating the use of student response systems into daily curriculum activities
- ☐ Maintaining a record of student successes and improvement

We will use standardized test scores as well as teachers' observations to assess the success of the program. Teacher observations will evaluate any noted improvement in student participation, understanding of concepts, as well as the effectiveness of their own instruction and their ability to better monitor and adjust their instruction to meet the needs of the diverse learners in their classrooms.

We hope to improve the students' understanding of curriculum, including math and science concepts. We will measure this by the teachers' observations and measurement of their students' change in performance and/or understanding in a pre- and post- test comparison of data.

We hope to enrich the student's math and science skills. We will look for improvement in

overall math and science skills using assessments, both in the classroom and on tests such as the ISAT. We will also look at teachers' perceptions of student participation after implementing the use of the "clickers". The information we collect from their use should help us to make better decisions about our instruction so that students are not "marking time sitting in classrooms" but rather are being challenged to be active participants in learning that meets their needs.

(2 pages) Write a 1-page budget narrative that explains your purchases and create a proposed budget spreadsheet (see example attached to this package)

We plan to purchase 2 sets of student response systems to use in our math and science departments. These can be easily shared amongst teachers. We also plan to buy two licenses of TI-Nspires for our math and science departments to share.

Activity	Materials and Supplies	Capital Objects	Quantity	Price per unit	Total
Immediate Assessment	Student Response System	Student Response Systems	2	\$3,390.00	\$6,780.00
Better Understanding	TI Inspires	TI Inspires	2	\$145.00	\$290.00
					\$0.00
					\$0.00
					\$0.00

Grand total: \$7,070.00